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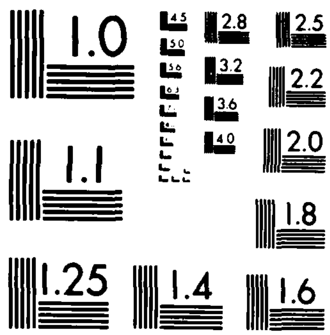

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AIR FORCE LOGISTICS MANAGEMENT CENTER

AD-A153 711

MOBILITY OPERATIONS BASE-LEVEL
LOGMARS ENHANCEMENT (MOBLE)

by

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AFLMC REPORT LX050711
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ABSTRACT

The purpose of this project was to design a streamlined base-level cargo mob lity process using source data automation (SDA).

This report recommends project MOBLE be used as a blueprint for further improvement of the base-level cargo mobility system.

EXECUTIVE SUMMARY

The objective of this study was to streamline the base-level cargo mobility process using source data automation (SDA).

MAJCOMs were surveyed, bases visited, and regulations, supplements and base-level mobility plans reviewed to obtain information on the current mobility processes. The surveys revealed the current base-level mobility system to be labor, procedural, and information intensive.

This study recommends project MOBLE be used as a blueprint for further mobility development work that will actually lead to implementation.

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CHAPTER 1

THE PROBLEM

1. BACKGROUND: AFR 28-4, USAF Mobility Planning, establishes the current guidance for mobility cargo processing procedures. The Mobility Control Center (MCC) is responsible for the centralized control of all mobility deployment operations. All deployment functions and mobility work centers are managed by the MCC during mobility operations. Those functions which are directly involved with cargo processing are shown in Figure 1-1.

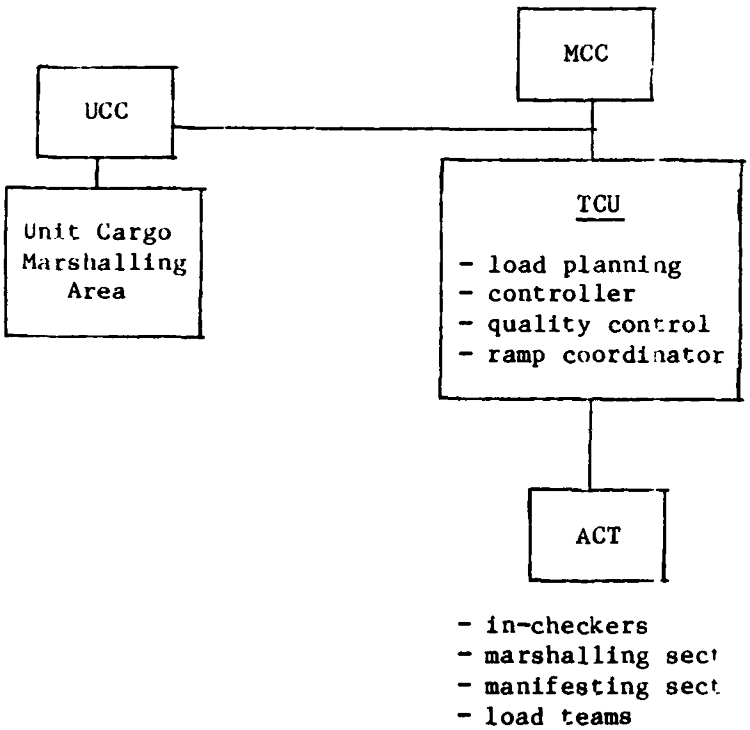


Figure 1-1. Base Level Cargo Process

The mobility work center with the largest responsibility during a mobility exercise is the Transportation Control Unit (TCU). The TCU monitors all transportation actions required to process and load cargo for deployment. Within the TCU there are four subfunctions. These are load planning, controller, quality control, and ramp coordinator. The TCU load planning function ensures support aircraft are properly load planned. The controller has the responsibility to monitor and post transportation activity start and completion times. This includes posting appropriate status boards in the TCU, relaying information to and from the MCC and keeping the TCU officer (TCUO) informed of any delays incurred. (The controller in essence is the point of

contact and information source for the TCUO.) As the title suggests, the quality control (QC) section has final responsibility for the various transportation functions performed by the transportation work centers. QC is responsible for verifying cargo manifests, performing final audit of manifest documentation, distributing manifest packages to the aircraft commander, cargo couriers and the TCU controller, and briefing the cargo couriers and aircraft commander. The last subfunction within the TCU is the ramp coordinator. The ramp coordinator is mobile, working in and around the cargo marshalling area and the aircraft loading area. The ramp coordinator is the last line of defense to ensure cargo is progressing in accordance with the Schedule of Events (SOE) and any problem areas are surfaced and resolved in a timely manner before they have a chance to affect the mission.

The Air Cargo Terminal (ACT), which works for the TCU, plays an important role in cargo processing. The ACT is responsible for physically processing all cargo for shipment. It has four major functions: receiving and in-checking cargo, marshalling the cargo into the marshalling yard by chalk, manifesting the cargo, and subsequently supervising the loading of the cargo on support aircraft.

The other functional areas which deal with cargo processing and report to the MCC are the Unit Control Centers (UCC). Each UCC's purpose is to prepare personnel and cargo for deployment. The UCCs select areas for the assembly of unit cargo for deployment. It is also their responsibility to ensure mobility shipping containers are on hand and serviceable; and the mobility cargo is packaged, documented and properly marked.

All of these functions work in close coordination to process cargo. Mobility status information is constantly being passed among each of the different functions by telephone, written documentation, and the intra base radio (IBR) network. The majority of the information being passed is concerned with cargo tailoring, marshalling, and aircraft load planning.

PROBLEM STATEMENT:

Current methods of base-level cargo mobility operations and management procedures are complex. They are time consuming and error prone. Furthermore, positive management and supervision of the process are impeded.

CHAPTER 2

DEVELOPMENT

1. Objective: The objective of this project was to design a streamlined base-level cargo mobility process using source data automation.

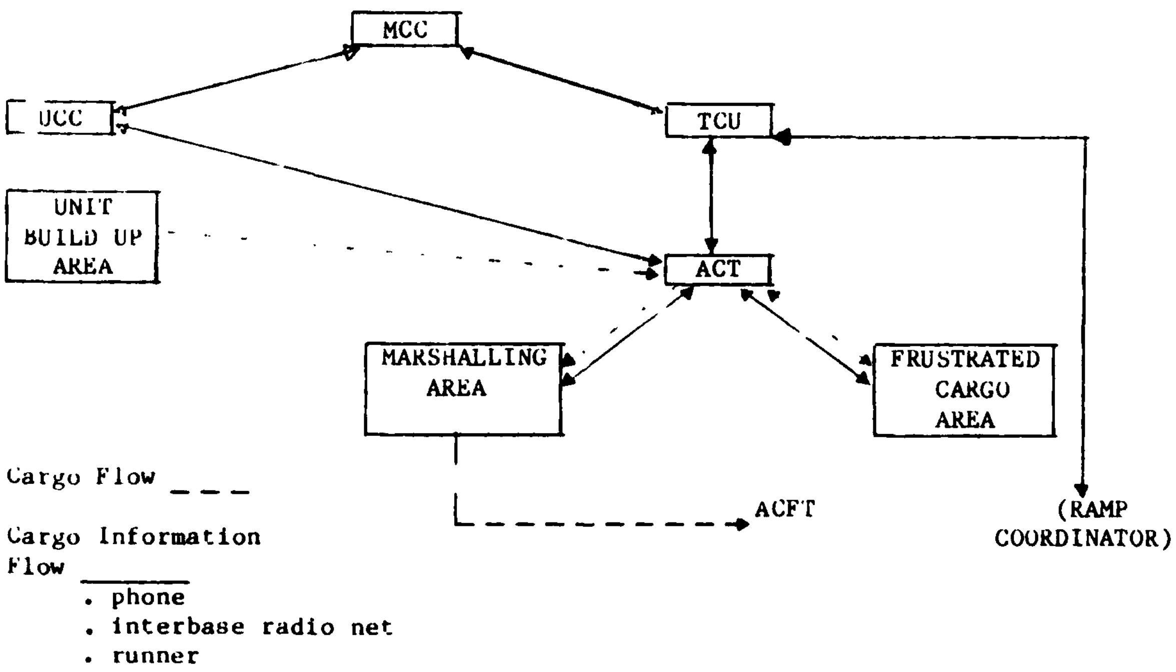
2. Approach: The following approach was used to identify base-level cargo mobility processing problems and design recommended system improvements.

a. MAJCOMs were requested to provide information on specific cargo problems experienced during base-level mobility exercises or actual deployments.

b. A review was conducted of current Air Force, MAJCOM, and base-level mobility related regulations, manuals, plans, supplements, and letters.

c. The AFLMC project team members observed actual mobility exercises at 11 bases within 4 MAJCOMs.

d. A functional analysis of the base-level cargo mobility process was performed. A simplified flowchart for both cargo and information flows at a typical Air Force Base is shown in Figure 2-1. The information is input into the network at various times, often repeated, and is dependent upon reliable verbal communication, handscribed notes and runners.



CURRENT CARGO AND INFORMATION FLOW

FIGURE 2-1

3. Results:

The analysis of cargo and information flow led to the identification of deficiencies that could be corrected through automation.

a. Deficiencies: The following deficiencies were identified:

Deficiencies	Example
(1) Too many manual tasks	- Maintaining status boards. - Typing mobility reports. - Reproducing and distributing data to mobility work centers.
(2) Pertinent information often not relayed	- Specific problems with frustrated cargo not relayed in a timely manner. - Marshalled cargo data not relayed in timely manner causing delays.
(3) Required information not always accurate.	- Increments with wrong increment numbers. - Increments listed as marshalled but increment was frustrated and returned to unit for correction. - Increments short items.
(4) Required information not always timely	- continuously contacting ACT for status of chalk that should have been completed. - contacting UCC for status of increment or frustrated increment that should have been marshalled.
(5) Large amounts of information relayed by phone, radio and paper difficult to organize for management use.	- information on increments marshalled. - information on increments frustrated followed with reason and get well time. - information when chalks are complete. - information of increment substitutions and cargo tailoring data. - unit equipment shortages & damages relayed. - transportation shortages to move cargo. - Shortages of vehicle drivers. - Shortage of nets and pallets. - notification from units on late cargo still being used. - answering status requests for DCR and wing commander. - Chalks loaded on aircraft, parking location & ETD.

(6) Decisions based on poorly organized and untimely information.	- Status boards do not display all information needed to make mobility movement decisions. - Status boards not updated often enough because of the delay in receiving information in a timely manner.
(7) Manual status boards difficult to read and keep current.	- Hard to read from one end of room to other. - Status boards cluttered with data (i.e., chalk #, load planning complete, manifest to QC, courier briefed, cargo load status, etc.)
(8) Large quantities of forms currently needed for base-level mobility.	- AF Form 2511, Personnel & Cargo Processing Schedule - AF Form 2512, Aircraft Loading Schedule - AF Form 2513, Mobility Alert Information - AF Form 2517 Air Courier Log - AF Form 127, Traffic Transfer Receipt - AF Form 2009-1, Manual Supply Accounting Record - DD Form 1249, Special Assignment Airlift Mission Requirement - DD Form 1385, Cargo Manifest - DD Form 2130, C-5A Passenger/Cargo Manifest. - DD Form 2131, C-130 Passenger/Cargo Manifest. - DD Form 2132, C-141 Passenger/Cargo Manifest. - DD Form 1387-2, Special Handling Data/Certification - DD Form 2133 Joint Airlift Inspection Record. - SF 400-447 (See AFR 0-9)
(9) Tailoring actions labor intensive.	- All adds and deletes to cargo listing reviewed by units with appropriate changes made manually. By the time these manual changes are made, there is insufficient time to generate new cargo listings.
(10) At the deployment site, cargo tends to be literally shoved from the aircraft onto the ramp and left in random order.	- no organization or location system so that equipment and materiel can be found as needed at the deployment site.

b. Source Data Automation Devices:

(1) SDA devices were determined to be a viable solution to correct many of the deficiencies in the mobility process stated above. These devices capture information at its source for subsequent input to automated data processing systems.

While many different SDA devices exist, the study concentrated on three types of devices that gather data using LOGMARS, key entry and voice entry. The three general categories that SDA devices fall into are as follows:

(a) Hard Wired. This handheld device is permanently wired to the computer. It is capable of bar code reading and key entry.

(b) Portable. This device is not permanently wired to a computer. It is capable of bar code reading, key entry and voice entry. It stores data until the operator determines a dump to the computer is necessary. The data transfer is usually accomplished by modem via telephone to the computer.

(c) Radio Linked. This device has the same operating characteristics as the portable model. However, it transfers its data through radio links at periodic intervals.

(2) Base level personnel could use a mixture of SDA devices. If a composite is chosen, the exact mixture should depend on local circumstances. Items to take into consideration would be: what joint use devices are available, types of computers used, availability of land lines, availability of radio channels, size of the Air Force Base, number of squadrons mobilizing, etc.

(3) Bar code labels will need to be affixed to each increment and item priority. The labels would be printed locally and permanently attached where possible. Last minute bar code requirements, due to cargo tailoring, would be printed programmatically.

c. Cargo Processing Automation Concept: We determined the base-level cargo mobility process can be streamlined to improve productivity using SDA. Data and information would be input only once and each node of the cargo system would be updated instantaneously.

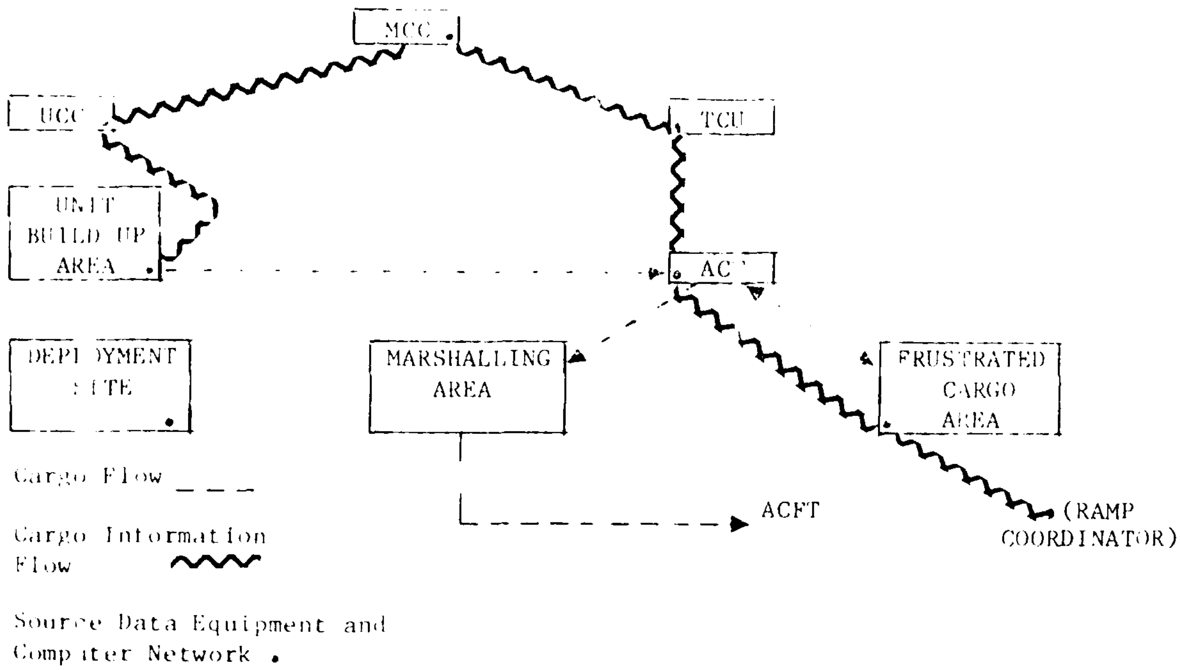
Beginning at the unit work center processing area SDA equipment could be used in the cargo marshalling process. Using the SDA equipment in the unit mobility work center (see Figure 2-2) would simplify the tailoring of material lists and aid in pallet build up. In providing data collection at the source of the cargo build up, the data is more accurate and timely, giving the MCC and all work centers real time information to work with. As the unit scans their item priority and increment information, the computer records what's being built up and correlates that, determining if all is accounted for or if there are items missing or added. It then notifies the user.

SDA equipment should also be used at the ACT. Information would be collected and provided to both the TCU and MCC on what increments have been

marshalled, and whether the increment was accepted, rejected, or frustrated. In addition, the reason for rejection or frustration and an estimated correction time would be given. With data collection at its source, data would be more timely and accurate.

SDA devices should be placed at the site where the aircraft is being loaded. As the pallets and materiel being loaded is scanned, information would be displayed as to what is actually being loaded and what is missing. Furthermore, information will display to the ACT, TCU and MCC when each aircraft load is complete.

The last recommended location for SDA equipment is at the deployment site. Here scanning would capture load information as material is taken off the aircraft. Moreover, a temporary grid storage area could be developed and set up for quick location identification. Thus, the assets could be quickly found and used by the functional user. When it is time to redeploy, the SDA equipment is ready to capture load information and continue the timely cargo processing.



PROPOSED METHOD OF INFORMATION FLOW

FIGURE 2-2

I. Timing:

The operational date for Phase IV (in supply) using the Sperry Univac 1100/60 is July 1985. Supply is also procuring SDA devices to be compatible with Phase IV. These devices are of the same nature and characteristics required for a cargo processing system. Once in place, they could be jointly used for mobility exercises or mobility tasking. This would reduce the cost of procuring new equipment and developing a cargo processing system for infrequent but critical mobility exercises or taskings.

CHAPTER 3

RECOMMENDATIONS

Develop a prototype source data automation system for cargo processing once Phase IV becomes operational and source data automation devices are available in base supply. (OPR: AFLMC/CC)

GLOSSARY

ACT - Air Cargo Terminal. A subordinate workcenter of the TCU. The ACT receives, inspects, frustrates, marshalls, and loads cargo for deployment.

JOINT USE - Equipment that is used daily to support the peacetime mission and can be released to support contingency operations.

INCREMENT - Increments are used for planning and assembling loads for cargo aircraft. Normally, increments are designed to fit a standard 463L pallet.

ITEM PRIORITY - This is an item of cargo used to build increments.

IBR - Intra Base Radio.

LOGMARS - Logistics Applications of Automated Marking and Reading Symbols. The 3 of 9 bar code system.

MCC - Mobility Control Center. A central point from which wing or unit mobility officers control deployment functions.

SDA - Source Data Automation. Automating data collection at its source.

TCU - Transportation Control Unit. A control point that monitors and controls all transportation actions required to process and load passengers and cargo for deployment.